



PERU'S BLACK MARKET IN FOREIGN EXCHANGE*

by ROBERT GROSSE

I. INTRODUCTION

THE FOREIGN EXCHANGE MARKET in Peru experienced the same kinds of overwhelming volatility and severe shocks as the rest of the national economy during the 1980s. Beginning in 1980, Peru's economy was buffeted by a severe decline in copper prices followed, in 1982, by a huge increase in real debt servicing costs as a result of the drop in industrial-country inflation and remaining high dollar interest rates.[1] This simultaneous squeeze on export earnings and hike in debt service cost led to an inability to meet foreign debt commitments and, essentially, a cutoff from access to foreign capital. Similar crises affected most countries throughout Latin America, and resulted in the foreign debt problem that continues today (Kuczynski, 1987).

Robert Grosse is Director of the Center for International Business Education and Research at the University of Miami (Coral Gables, FL). He is co-author (with Jack N. Behrman) of INTERNATIONAL BUSINESS AND GOVERNMENTS (University of South Carolina Press, 1990) and his current research interests are the black markets in foreign exchange in Latin America.

*This article discusses the black market in foreign exchange that existed in Peru prior to the government of President Fujimori, who took office in August 1990. The market continues today, but some of the characteristics have changed significantly due to the process of economic opening now underway.

As a result of these pressures, the Peruvian government enacted a range of policies to conserve the limited foreign-exchange reserves available. First, imports were greatly restricted through licensing requirements and bureaucratic delays — though, even before this time, the ability to import was highly regulated.[2] Also, the government imposed various impediments on importers, as well as on exporters who need access to foreign exchange, particularly US dollars.[3] Exporters were required to sell their dollars to the Central Bank and to receive "CLDs" (*certificados de libre disponibilidad* or foreign exchange certificates) in exchange. The CLDs were financial instruments denominated in US dollars, with maturity of 90 days, that yielded local currency (Intis) at the dollar exchange rate of the day at maturity. They did **not** pay out in dollars, and they sold at a discount in the financial market of Peru during their 90-day life span.

In addition, importers of most goods had to purchase foreign exchange at the CLD rate, which was much more costly than the official rate that was allowed for imports of necessary goods (such as food and some machinery) and for servicing foreign debt. This cost was added to the cost of import-licensing, which was implicitly high because of the bureaucratic delays involved, and the fact that a significant percentage of requests for licenses were not acted upon in time for the transactions to take place.

Because of these various limitations on access to foreign exchange, a significant black market in foreign currencies was born, which has grown, over the decades, to make up a very significant part of total foreign exchange dealings in Peru.

Reasons For Black Markets In Foreign Exchange

Black markets in foreign exchange have arisen in many countries throughout history in response to government controls on access to foreign exchange. Typically, the controls are imposed to try to protect a government's limited stock of foreign exchange reserves. The need for this protection, in turn, is caused by trade deficits and/or capital flight that result in net demand for foreign exchange at the central bank. Once a

government imposes the limitations on holding foreign exchange, or on transferring it overseas, demand for an alternative source of that currency arises. In response to these conditions, an underground market in foreign currency or, in the terms used here, a black market typically develops. [This phenomenon also is called, variously, the "grey market," the "street market," the "unofficial market," and other names in different countries].[4] This term should be distinguished from the non-bank, legal foreign exchange market that has existed for several years in such countries as Ecuador and Chile and which operated principally through (licensed) exchange houses.[5]

Black markets imply a range of important issues for the countries where they operate. First, the existence of a black market typically results from a current, or past, imbalance in international payments, so it is usually associated with an excess demand for foreign exchange in the local market. This disequilibrium is a target of government policy, both in terms of controls on access to foreign exchange (that produced the black market) and on domestic monetary policy (that often produces inflation, which, in turn, adds pressure for devaluation of the currency). Thus, the underlying imbalance is the crucial issue that policy-makers confront, with the black market as one of its symptoms.

This imbalance may be the result of several factors, separately or in combination. An **excessive rate of monetary growth** can lead to inflation. If that inflation exceeds price increases in other countries, it will lead to demand for foreign currencies, both to buy foreign goods and to hold wealth in more stable currencies. A less developed country may find that **investors' confidence in the economic prospects of the country is weak**, and that, consequently, they look to place their investments in other countries (and, therefore, in other currencies); this again produces excess demand for foreign exchange and contributes to the capital flight that such countries want to avoid. Even without the previous two factors, a country may find that **goods produced locally are perceived as inferior in quality** to similar goods produced abroad; and thus demand arises for foreign exchange to buy those higher-quality foreign products.

A second variety of reasons for the development of black markets is the existence of an underground (or informal, or grey, etc.) economy in the country (Pitt, 1984; Bhandari and Decaluwe, 1989; Sheikh, 1976). When some participants in the local economy enter into illegal business activities — such as sale of contraband products — then **a need arises for financial services that circumvent the legal financial system.** The underground economy can be as "harmless" as the street vendor phenomenon that exists widely throughout less developed countries. Street vendors obtain contraband products (ranging from toothbrushes to televisions) and sell them from unregistered places of business (usually from sidewalk tables or, literally, in the street). Another type of underground economy that has become quite significant in a few countries is the trafficking of narcotics. This business involves products such as marijuana, heroin, and cocaine, which are illegal to produce and sell in the first place, thus requiring use of non-conventional means of production, transport, sale, and financing. The black market in foreign exchange provides both of these kinds of business access to the foreign currency needed to purchase the contraband goods — and, in the case of narcotics, the access to local currency that can be bought in exchange for foreign currency earned in the drug trade.[6]

Previous Analyses of Foreign Exchange Black Markets

Most studies of foreign exchange black markets have focused on two types of economic issues: the impact of the market on the local economy, and the explanation of the premium on the black market price of foreign exchange in comparison with the official exchange rate. In the former category, Greenwood and Kimbrough (1987) demonstrated that the operation of a black market in foreign exchange mitigates the effect of exchange controls on domestic relative prices and the level of consumption of imports. They also showed that if the government sets exchange controls to maintain policy goals despite leakage of funds into the black market,

then the black market may reduce economic welfare. Pitt examined the relationship of smuggling and capital flight to the black market and demonstrated that government controls on access to official foreign exchange (imposed, for example, due to a trade imbalance or shortage of foreign exchange in the central bank) are **not** necessary for the existence of a currency black market (Pitt, 1984). As discussed in the current article, he showed that existence of a contraband market whose participants could not use the official foreign exchange market is a sufficient condition for development of a black market.[7]

Nowak developed a general equilibrium model for examining the impact of exchange controls on economic welfare when a black market exists (Nowak, 1984). He demonstrated that the black market mitigates the inflationary impact of official exchange rate devaluation; and that exchange controls that produce a currency black market lead to a black-market devaluation that has similar inflationary influence as would an official exchange rate devaluation. Gupta created a model of India's black market exchange rate and determined that increased domestic money supply was associated with a black market devaluation and a tendency for exporters to divert their products to domestic markets (because of rising domestic prices), thus reducing foreign exchange reserves (Gupta, 1980). As well, he examined the links between this phenomenon and the occurrence of under-invoicing of exports (so that the exporter shows less foreign exchange earnings in the official market and leaves more foreign exchange, illegally, in the black market where it is worth more).

Additional studies have examined the relationship between the black market rate and the official market exchange rate. Michaely studied black markets in commodities to show that the black market price (exchange rate) would be an upper boundary of the free-market price of the commodity (or currency) in question (Michaely, 1954). Other writers following this first step have argued that the premium on the black market price of foreign exchange is the adjustment to the official exchange rate that can be evaluated to judge whether or not purchasing power parity is reflected in the rate.

These authors have generally found black market rates to be strongly related to purchasing power parity, that is, to reflect

the difference between domestic inflation and inflation in the foreign country (typically the United States) whose currency is being compared.[8] Culbertson found strong correlations between the inflation differential and the black market exchange rate for 3 less-developed countries during 1952-71 (Culbertson, 1975). Koveos and Siefert found similar strong correlations for several Latin American countries during 1973-83 (Koveos and Siefert, 1985). This last study, as well as that of Aggarwal (1990) and others, have found that black markets in less-developed countries tend to be efficient markets in their tendency to achieve purchasing power parity. [That is, the black markets generally reflect publicly-available information about inflation in each country at the time of the exchange transactions.]

This first section of this article examines the black market for foreign exchange in Peru, focusing on the reasons for its existence, the way in which the market functions, and the implications for Peru. The next section presents an overview of such markets. Subsequently, the Peruvian market's structure and functioning are analyzed. The fourth section examines the determination of the exchange rate in Peru's black market during the past two decades. The final section uses the empirical findings to draw some conclusions.

II. CHARACTERISTICS OF FOREIGN EXCHANGE BLACK MARKETS

IN MOST CONTEXTS, the black market operates as an illegal (but often broadly accepted) source of foreign currency. Thus, the cost of buying foreign exchange in this market is generally higher than in the official, legal market. Because of the risk of government sanctions involved in using the black market, the buyer of foreign exchange will pay more local currency (e.g., Intis) for foreign currency than in the official market. In addition, the general scarcity of foreign exchange tends to make its price high in the black market just because of the excess demand in the official market. Conversely, the suppliers of foreign exchange — often foreign tourists and local residents who hold foreign currency abroad — will receive more local currency for their money than in the official market.

Examples of black markets in recent years demonstrate exchange rate premia ranging from a few percentage points up to more than 100% of the official market rate.[9] In Argentina, during 1987, the official austral used in paying for "necessary" classes of imports and servicing of foreign debt was quoted at a rate of just about half of the black market rate (1.3 australes per dollar *versus* 2.6 australes per dollar). In Brazil, under the second cruzado plan at the end of 1986, the official rate was about 14.9 cruzados per dollar, while the black market rate was about 31.5 cruzados per dollar. In India, at the end of 1989, the rupee was quoted at about 17 rupees per dollar while, in the black market, the rate was about 23 rupees per dollar. Some cases also exist where the black market rate more closely approximates the official rate, as in Colombia during 1990, where the black market premium was about 2-3%, because the official market had approximately equated supply and demand, and the black market had achieved a similar equilibrium with contraband inflows offsetting flight capital outflows.[10] The Appendix shows graphically the difference between official and black market exchange rates for several of these countries, demonstrating the fairly consistent premium on purchase of foreign exchange in the black market.

The Peruvian Case

Peru's foreign exchange black market has varied in importance over the past two decades as governments have faced greater or lesser crises in gaining access to foreign exchange, and also as government policy has placed the non-official market as either a parallel, non-bank phenomenon (operated largely through legal *casas de cambio*) or as an illegal market outside of the formal economy.

Peru has operated a multiple exchange rate regime since before 1970. In that year, foreign exchange controls were introduced, fixing the local currency (Sol) value relative to the dollar and imposing a "tax" on purchase of foreign exchange for importing and also a "tax" on purchases of foreign exchange for travel abroad. These taxes were altered from time to time, as was the Sol's value relative to the dollar during the 1970s. In

1977, the Sol was floated against the dollar, though the taxes on purchase of foreign exchange for specific purposes remained and continued to be changed periodically. In that year a CD rate for purchases of foreign exchange to pay foreign loans and transfers was introduced at another exchange rate.

In the early 1980s, this process of allowing the Sol's value to float in a controlled manner continued. New exchange rates were defined for various categories of imports in 1982, and separate financial rates were continued for private loan repayments and official loan repayments. The onset of the foreign debt crisis was met with increasingly loose monetary policy, leading to growing inflation and heavy devaluations of the Sol.

By 1985 the official exchange rate had reached more than 10,000 Soles per dollar and, in February, a new currency — the Inti — was introduced at a value of 1000 Soles per Inti. Deep recession and the unmanageable foreign debt burden, which resulted in rapid monetary expansion, kept downward pressure on the Inti. In mid-1986, the multiple exchange rate system was reduced to a single market-based rate for most transactions and a single financial rate for exports and some service payments abroad. This policy continued until the end of the year, when multiple exchange rates were again imposed.

The year of 1987 began with a plan to devalue the Inti by 2.2% per month in the various foreign exchange categories, but this goal had to be abandoned in July. At that time foreign-currency bank deposits were declared illegal, and dealing in foreign exchange was restricted to the financial system. This system of heavy control continued until September 1988, when banks were once again permitted to offer foreign currency accounts and non-banks were permitted to deal in foreign exchange.

During the period from September 1988 through July 1990, Peru had essentially four foreign exchange markets.[11] [From January 1987 through August 1988, three of these markets were functioning, and the market for importers was subdivided into several sub-classes of exchange rates and licenses.] The description provided here covers the more recent system, and offers comments on the relevant differences that existed previously.

The four markets are the following.

- the controlled exchange market, MUC (*mercado único de cambios*)
- the free market for banking transactions
- the market available to importers
- the black (parallel) market.

Each of these markets had its own exchange rate(s), and they are presented in increasing order (more Intis per dollar down the list).

The **controlled exchange market** was used for transactions involving imports of goods defined as necessary, payments for non-traditional exports, travel abroad by students or those seeking medical treatment, and all petroleum dealings. The controlled exchange rate (MUC rate) averaged about 655 Intis per US dollar in January of 1989.

The **free banking market** for bank transactions was used for incoming investment flows, service payments and remittances abroad, and for specific import products including capital goods, books, and autos. The free market rate averaged about 700 Intis per dollar in January of 1989.

The **market for importers** of goods other than those listed above required the importers both to obtain import licenses and buy foreign exchange at a disadvantageous rate. This rate was obtained through purchase of certificates issued by the Central Bank to exporters in exchange for their foreign currency receipts. The certificates, called CLDs (*certificados de libre disponibilidad*), were sold by exporters for Intis and purchased by importers who were not covered by the two previous categories of exchange market. The CLDs generally traded at an exchange rate that exceeded the free market rate by 25% or more; in January of 1989 the CLD rate averaged about 1,071 Intis per US dollar.

Finally, the **black market** was used by those who could not obtain foreign exchange in the previous markets: because a product was not allowed to be imported (and thus had to be imported "informally"); because the business involved dealt in contraband; because the user wanted to avoid bureaucratic problems; or because narcotics were involved. The black

market rate averaged about 1,897 Intis per dollar in January of 1989.

Peru's rules on holding and dealing in foreign exchange changed frequently during the 1980s. Beginning 29 July 1987, Peruvians were **not** permitted to hold dollar-denominated bank accounts; whereas such accounts were permitted after 29 September 1988 (IMF, 1988; 1989). During the entire decade, Peruvians were **not** permitted to transfer abroad dollars or other foreign currency except in payment for import transactions and other specifically authorized transactions (IMF, 1988: 386; 1989: 374). Thus, foreign exchange houses were primary providers of these services during the period.

It should be noted that rules on the holding and transfer of foreign exchange were not effectively enforced during the 1980s. That is, much of Peru's foreign exchange dealings, overall, passed through the black market, especially when bureaucratic delays made the legal markets difficult or impossible to use. It has been estimated that well over half of Peru's total economy operated in the "informal" sector, or underground economy, which went legally unrecorded (De Soto, 1986).

The black market in foreign exchange is important in the Peruvian context for several reasons. First, it indicates an economic inefficiency, due to the exchange controls that caused transactions to move into the black market. This inefficiency must be considered in comparison with alternatives, such as eliminating the controls and dealing with the subsequent outflow of foreign exchange reserves through other policies (such as import tariffs or quotas), or automatic adjustment (which would lead to an Inti devaluation and, hopefully, a rise in exports plus fall in imports sufficient to balance the demand for foreign exchange). Second, it provides an indicator of the equilibrium exchange rate that would have to exist to eliminate the excess demand for foreign exchange that typically has been shunted from the official market into the black market.

In Peru in particular, the black market is especially important in the context of **narcodollars**, the earnings of Peru's narcotics traffickers. In 1988, Peru supplied approximately 50% of known world cocaine paste, along with Bolivia's production of about 40%, and Colombia's production of most of the rest

(Campodónico, 1989: 226). As shown below, this source of dollars became the main supply into the black market, as Peru's general economic condition deteriorated during the 1980s.

III. STRUCTURE AND FUNCTIONING OF THE BLACK MARKET IN THE LATE 1980s[12]

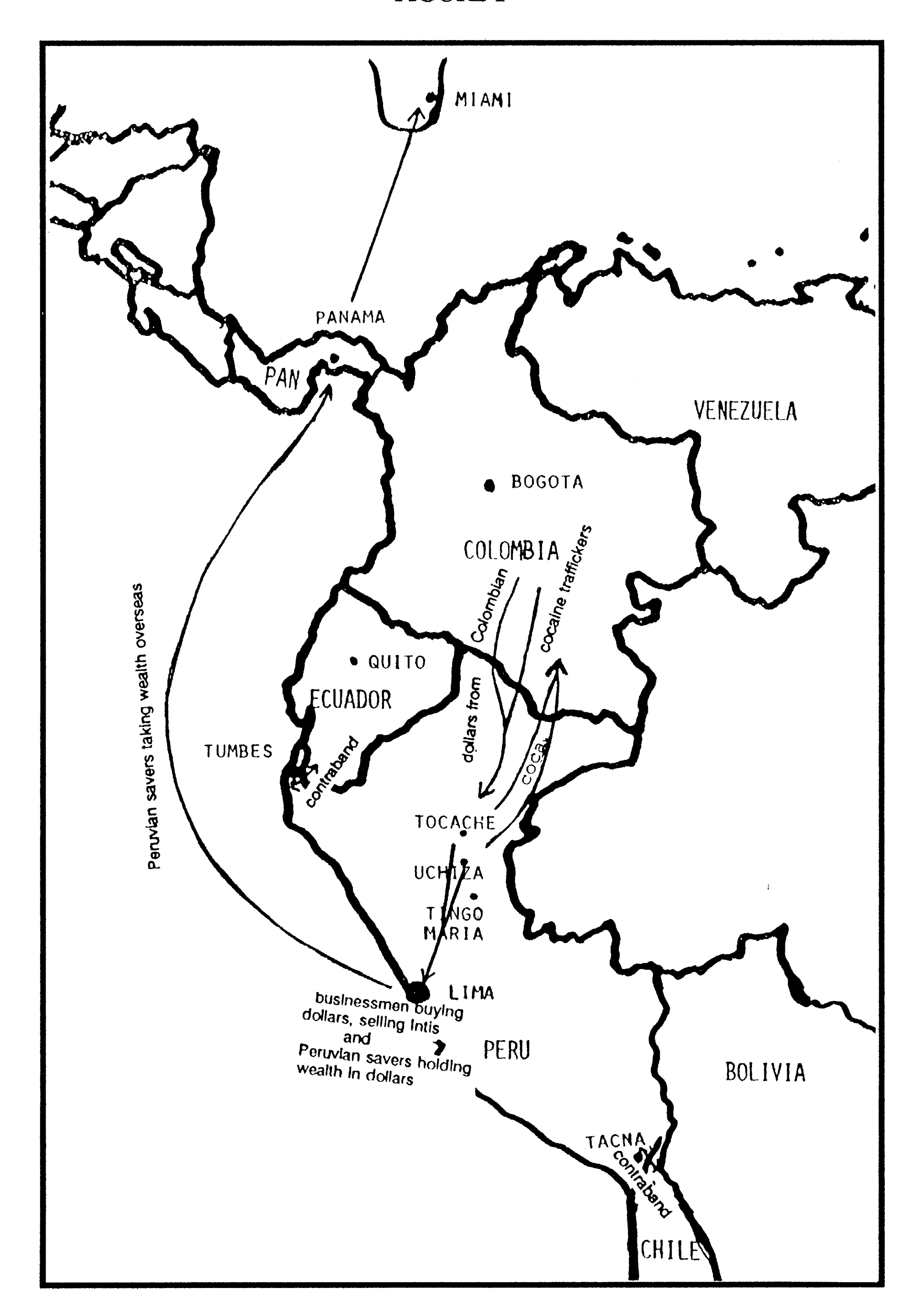
FIGURE 1 depicts the various participants in the market and its geographic structure.

Notice that the black market is centered in Lima, Peru's capital and largest city. Much of the supply of dollars into the market apparently comes from narcotics trafficking. Additional sources of foreign exchange in the black market include contraband sales at the northern and southern borders — with Ecuador and Chile, respectively. Depending on the exchange rate between the Inti and Ecuador's currency, many different products will be cheaper on one side of the border or the other. When the Inti is undervalued relative to the Ecuadorean sucre, then contraband exports from Peru take place and sucres as well as dollars enter the Peruvian black market.[13] The same phenomenon occurs at the Chilean border — and the volume of business is greater, since Chile is a larger country and it has frequently maintained an overvalued peso over the past two decades.

Demand for dollars in the black market comes primarily from Peruvian businesses that wish to purchase imports without passing through the official market, and from Peruvian individuals or families that want to hold part of their wealth in dollars, especially overseas (1/2 de Cambio, 1988). Thus, these purchasers of dollars demand both the foreign exchange and, often, the placement of the funds in the United States, as depicted in Figure 1.

The foreign exchange black market is operated largely through a group of "wholesale" *cambistas* (foreign exchangers) who buy dollars where they are available and sell them to customers for delivery in Peru or elsewhere. These large *cambistas* account for the greatest part of the value transacted in the market; the thousands of small-scale *cambistas* who operate on the streets of Lima (including Calle Ocoña), and in stores and

FIGURE 1


MIAMI
PANAMA
PAN
VENEZUELA
BOGOTA
COLOMBIA
Colombian
cocaine traffickers
QUITO
ECUADOR
dollars from
TUMBES
contraband
coca
Peruvian savers taking wealth overseas
TOCACHE
UCHIZA
TINGO MARIA
LIMA
businessmen buying dollars, selling Intis and Peruvian savers holding wealth in dollars
PERU
BOLIVIA
TACNA
contraband
CHILE

homes, account for the vast majority of transactions in the market.

The market is linked directly with the Upper Huallaga (pronounced "Why-aga") River valley, where about 70% of Peru's coca farming is carried out.[14] The coca farmers sell both coca leaves and processed cocaine paste to Colombian narcotics traffickers. The Colombians fly airplanes into several villages in the valley (such as Uchiza, Tocache, and several others),[15] where they exchange US currency for the coca. The Peruvian growers, in turn, sell the dollars to local foreign exchange houses which, in turn, sell them to Lima-based exchange houses[16] for local currency (Intis). Only about a dozen exchange houses exist in the Upper Huallaga, and they sell dollars to a similarly small number of large exchange houses from Lima. The Lima-based currency exchangers fly airplane-loads of Intis to Uchiza, Tocache, etc., when news of a coca shipment to Colombia is received in Lima. They then return to Lima with the dollars several hours later.

At this stage of the black market, US dollars have been brought into the country by Colombian narcotics traffickers and received initially by Peruvian coca farmers, who sell the dollars — through their local exchange houses — to Lima exchange houses for Intis.[17] The Lima exchange houses then complete the process of integrating the dollars into the Peruvian economy by selling them to clients at the wholesale and retail levels. Pictures of *cambistas* waving calculators to show their price quotes and selling dollars in the street (especially the famous Calle Ocoña) have by now become commonplace in local and international newspapers.

In addition to the direct sale of currency to local clients, the large exchange houses also provide the service of transferring funds to foreign destinations, such as Panama and Miami. In this case the foreign exchange market operates such that the client delivers Intis in Lima, and subsequently receives a deposit into his/her bank account in the foreign location specified. The charge for this additional service was on the order of 1-2% of the value exchanged.[18]

THE ALTO HUALLAGA

THE "ALTO HUALLAGA" is the southernmost part of the valley cut by the Huallaga River, which winds northward from near the town of Tingo Maria (in Juánuco province) and eventually contributes to the formation of the Amazon River in Iquitos. While Tingo Maria is the only populous town in the area, and one that is controlled to some extent by the Peruvian government, the rest of the region is wild and lightly populated, with only a handful of villages such as Tocache and Uchiza. The central part of the river valley begins at about Tarapoto in the San Martín province.

The Alto Huallaga region lies on the eastern slopes of the Andes mountains. It is mostly a jungle terrain with no highways and few roads. The total population of the region is less than 100,000. The land is not particularly fertile, though it is suitable for the coca plant, which grows quickly and produces coca leaves that can be converted into cocaine as early as the first year of growth.

The economy of this region is almost completely dependent on production and sale of coca leaves, cocaine paste, and cocaine hydrochloride to Colombian narcotraffickers. No other source of foreign exchange exists there. Before 1980, coca was one of several crops grown locally for local consumption, along with corn, rice, cocoa, and coffee. The farmers lived largely at a subsistence level and had very little contact with the outside world. It was only with the development of the US market for cocaine that this region came to the attention of outsiders.

The coca leaves that are grown by local farmers are generally processed into cocaine paste in the same region. At present (1990) and during the 1980s, most of the processing into cocaine hydrochloride took place in laboratories outside of Peru, depending on the Colombian narcotraffickers. An increasing portion of the Peruvian exports is being processed into cocaine hydrochloride locally, due to interdiction efforts in Colombia during the late 1980s and early 1990s (Briceño & Martinez, 1989: 267-9).

Narcotraffic Size Estimates

The volume of dollars in the narcotraffic grew dramatically over the past decade. Estimates for the period 1980-87 are shown in Table 1.

Note that most of the value was earned through the sale of cocaine base (the intermediate, partly-processed product), while smaller percentages of the total came from sale of coca leaves (the raw material) and sale of cocaine hydrochloride (the final product).[19]

Estimates from other studies of the value of sales of coca and derivatives during the years 1988 and 1989 remained consistently above $US1 billion per year (see, for example, Medio de Cambio, 1990). Campodónico estimated the income for Peruvian narcotraffickers at $US1.548 billion for 1988 (Campodónico, 1989: 238); and Perú Económico similarly estimated it at $US1.5 billion for that year (1989). This value can be compared with the total legal foreign exchange earnings of Peru for 1989 of $US3.491 billion (IMF, 1991: 320).

Table 1

Flows of Narcodollars earned in the Cocaine Trade

year	value of exports, coca and derivatives
1980	367.8
1981	517.4
1982	654.6
1983	371.4*
1984	549.0
1985	715.1
1986	1,089.0
1987	1,412.1
1988	1,548.0 *

Source: Briceño and Martínez (1989). p.270.

* This estimate is from Campodónico (1989) p.238

* Estimated coca and derivatives income fell dramatically in 1983 due to slow growth in market demand in the United States and a large increase in total supply. See Briceño and Martinez (1989) p. 270. This is consistent with data from the NNICC (1987).

Black Market Size Estimates

While no precise measure of the volume of money transacted in the foreign exchange black market can be obtained, several estimates are available. A major complication in the estimation process is the fact that Peru's economy became greatly "dollarized" during the 1980s: i.e., many people chose to hold significant parts of their wealth in dollars, and prices of many goods were quoted in dollars rather than Intis. This situation, along with the availability of dollars through the black market, resulted in a huge supply of dollars being held in cash in Peru. For example, *Perú Económico* estimated that in 1988 about $US700 million in cash coming from coca/cocaine exports was retained within Peru. The black market itself may be the initial source of dollars that enter the system, but these dollars subsequently function as part of Peru's *de facto* money supply without necessarily being exchanged for Intis at any time (Canto, 1985).

One estimate of the size of the total foreign exchange black market is presented in *Actualidad Económica* (1988b). It shows approximately $US380 million exchanged by retail *cambistas* and about $US700 million exchanged by wholesale dealers, for a total of $US1.08 billion in 1988. A similar estimate of $US1 billion was given by the Director of Peru's INP (*Instituto de Planificación*), who was quoted in the 14 July 1987 issue of *El Nacional* (cited in Actualidad Económica, 1988b). These figures, when compared with the value of narcodollars entering Peru, demonstrate that virtually all of the black market supply of dollars does, indeed, come from coca and cocaine exports.[20]

Participants (wholesale *cambistas*) in the black market estimated that the black market in 1988-89 was comprised largely of narcodollars. Because some of the narcodollars that are earned by Peruvian traffickers are probably **not** brought into the country, it is likely that a portion of the black market is supplied from other sources. Using the *Perú Económico* estimate of narcodollars brought into the country with the $US1 billion estimate of black market size gives a proportion of about 70% for narcodollars in 1988 — an estimate that was supported through interviews of large-scale *cambistas*. During the year 1990, a decline in the sale of coca and its derivatives

led to reduced dollar inflow from that source at the same time that Peruvians were repatriating significant amounts of their overseas dollars to meet domestic financial needs, under the severely depressed conditions of the time. Thus, for 1990, the final estimates of narcodollars supplying the black market may be under the estimates for the previous few years.

IV. DETERMINATION OF THE BLACK MARKET EXCHANGE RATE

THE EXCHANGE RATE in a black market may be expected to reflect several important relationships. First, it will usually offer an exchange rate worse that the official rate to sellers of local currency, since they pay a premium over the legal rate to compensate sellers of the foreign exchange for the risk of this illegal activity (Pitt, 1984). Second, it may show a relation between foreign and local currency that more closely reflects parity conditions between the two since there are no restrictions on the black market, other than its illegality (Koveos and Siefert, 1985). In other words, participants on both the supply and demand sides of the market are free to buy and sell at mutually-agreed exchange rates, resulting in a basically free market (biased only by the cost of the transaction, e.g., paying an intermediary for the risk of undertaking the illegal transaction).[21] Therefore, the black market rate can be expected to equilibrate supply and demand for the currency and, thus, to reflect an equilibrium in the market. These two points are not inconsistent, since government intervention in the official market leads to a condition of non-parity, which is relieved in the freely-determined black market.

The Model

The purpose of this section is to present a simple economic fundamentals model of determination of the black market exchange rate in Peru during 1970-89. Monetary and balance-of-payments factors can be expected to be the main influences on the exchange rate between pesos and US dollars (Connolly

and Taylor, 1984; Dornbusch *et al.*, 1983; Culbertson, 1989) — plus the narcotraffic.

For most of the relevant variables, monthly data were available for this period. The narcotraffic was only measured annually in the black market, so a moving-average time series interpolation was employed.

The model tested for the Black Market Exchange rate (BME) was:

BME rate = a + b1(price level Peru/price level US) + b2(trade balance Peru) + b3(inflow of narcodollars)

This specification[22] hypothesizes a positive relationship between the ratio of the aggregate price level in Peru to that in the United States and the exchange rate defined as Intis per dollar. The greater the difference between Peruvian and US prices (i.e., the relative rate of Peruvian inflation), the greater the devaluation of the Inti (i.e., more Intis per dollar). This is one measure of the purchasing-power-parity argument.

A second factor that could be expected to influence the exchange rate is the trade balance, which is a proxy for Peru's ability to generate foreign exchange to supply the (official) market. In fact, a positive trade balance could be expected both to generate foreign exchange that puts downward pressure on the Inti/dollar rate (i.e., for the Inti to revalue upward compared to the dollar) **and** to generate confidence in Peru's ability to service its foreign debt — both of which lead to an expected negative relationship between the trade balance and the black market exchange rate. An alternative specification of this relationship could use the change in Peru's official foreign exchange reserves to measure the pressure on the exchange rate. Since the official reserves balance records both trade imbalances **and** capital account imbalances, it is really the bottom line in the balance of payments that would be expected to affect the exchange rate. As official reserves decline, the Inti is expected to devalue relative to the dollar because the reserve outflow results in a greater scarcity of foreign exchange.

The third factor that is expected to influence the rate is the supply of narcodollars into the market. Clearly, if most of the market is supplied by narcotics proceeds, then the flows of

funds in that traffic will have an important impact on the supply side and, hence, on the price of foreign exchange in the black market. The greater the supply of narcodollars, the lower the value of the Inti/dollar exchange rate expected in the black market.

The estimation of this equation using monthly data from 1980-89 produced the results shown in Table 2.

The basic model (Equation 1), presented in the first column, produced highly significant coefficients for two of the three independent variables and explains almost all of the variation in the black market exchange rate during the period as well. The price level ratio between Peru and the United States ex-

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Table 2

Regression Results

DETERMINATION OF PERU'S BLACK MARKET EXCHANGE RATE, 1980-89

Dependent Variable: black market exchange rate (monthly data supplied by the Banco Central de Reserva for January, 1980, through December, 1989)

Independent Variables	**Parameter Estimates (Significance Level)**			
	EQN. 1	**EQN. 2**	**EQN. 3**	**EQN. 4**
Constant term	4198.6 (.029)	3664.4 (.025)	4235.4 (.023)	6161.6 (.001)
Measures of inflationary pressures				
1. Peru money supply/ U.S. money supply			4.52E5 (.000)	4.56E5 (.000)
2. Peru price index/ U.S. price index	12037 (.000)	11979 (.000)		
Measures of dollar availability				
1. trade balance	-2.81 (.588)		12.19 (.004)	
2. official reserves*				
Cocaine flow measure	-66.87 (.014)	-60.48 (.013)	-66.59 (.020)	-87.67 (.003)
Adjusted R	0.957	0.957	0.932	0.926
F-ratio of regression	727.4 (.000)	1098.9 (.000)	430.7 (.000)	591.5 (.000)
number of observations	99	99	94	94

*It was not meaningful to run regressions using official reserve flows, since these flows were 99% correlated with the relative monetary growth variable.

plained most of the variation in the black market exchange rate, as is generally found in analyses of exchange rates in less-developed countries. That is to say, the main factor contributing to the devaluation of Peru's Inti relative to the US dollar was the greater rate of growth of Peru's aggregate price level. The devaluation trend of the black market Inti followed the price level differential closely; in the model, the relative price variable explained about 96% of the variation in the black market rate.

Narcotics traffic — as measured by the inflows of dollars into Peru from coca, cocaine base, and cocaine exports — explained an additional part of the variation in the black market exchange rate. This variable was highly significant (at more than the .02 level) as well. By itself, the narcotics traffic variable was able to explain 70% of the variation in the black market exchange rate.

The trade balance coefficient is incorrectly signed and insignificant; it explains some additional part of the variation in the black market exchange rate. This outcome may be due to misinterpretation of the direction of causation between the trade balance and the exchange rate; it is possible that the devaluations of the peso led to improved trade balances during this period of time. This outcome, alternatively, may be due to the fact that Peru suffered through the same debt crisis as other Latin American countries throughout the 1980s, and a favorable trade balance was virtually forced on the country in order to try to make payments on the sizable foreign debt. Therefore, a positive trade balance may have been an indicator of the external debt crisis more than an indicator of Peru's actual availability of foreign exchange. A better measure of foreign exchange availability would be total official reserves flows, which are discussed below. Finally, the result obtained in the present specification was **not** robust to other specifications; so the trade balance may not be a key factor in determination of the black market rate, despite this first model's outcome.

Next, the model was respecified using alternative measures of inflation (namely, money supply growth) and foreign exchange availability (namely, official reserve flows). The results of these respecifications are also presented in Table 2. Column 2 presents results from the original model with the insignificant trade balance eliminated. Then Columns 3 and 4 replace the

first two versions of the model with relative money supply replacing relative price levels. The money supply equations explain slightly less of the exchange rate variation, though the trade balance is significant in this case. Official reserve flows as a measure of foreign exchange availability could not be used in the statistical estimation since this measure was highly collinear with the inflation and money supply variables.

In all, the various specifications show that the proxies for **inflation** in Peru relative to the United States, plus the **flows of narcodollars**, consistently explain most of the variation in the black market exchange rate between Peruvian Intis and US dollars. The former relationship supports the hypothesis that purchasing power parity tends to be the most significant driving force behind exchange rate adjustment in Latin American currency black markets. The latter relationship supports the hypothesis that the currency black market is a significant recipient of narcotics-related dollars and, thus, serves to facilitate the drug trafficking business.

V. IMPLICATIONS OF THE FOREIGN EXCHANGE BLACK MARKET TO PERU

CONCLUSIONS ABOUT the foreign exchange black market in Peru need to be drawn on two levels. First, it must be concluded that the market will remain in operation even with an opening of the official foreign exchange market, as long as the black market is used by underground economic activities, such as contraband trade and narcotics trafficking. Second, the costs and benefits of a full opening of the official market and imposition of enforceable constraints on the black markets need to be analyzed carefully; this is a task beyond the scope of the present analysis.

The Durability of the Black Market

The possibility for eliminating the foreign exchange black market in Peru is quite small, unless the government is able both to (1) open up the official market fully and (2) eliminate

the underground economy. The former condition has largely been achieved in Peru and elsewhere in Latin America with a sweep of open-market economic policies through the region in 1990 and 1991. Nevertheless, black markets in foreign exchange continue to flourish in Latin America into the 1990s despite these efforts to make them unnecessary by opening up the official markets. This is because such a large portion of Latin American economies operates underground — with most estimates showing that about 2/3 of Peru's economy is in this "informal" sector.

The black market is heavily used in the operation of the underground economy, particularly in unreported exports of traditional products. Unless the regulatory regime is altered to make the black market less attractive to these users, it will continue to be used. Also, the narcotraffickers must resort to some form of black market since their entire business is illegal and their revenues are primarily in foreign exchange. Thus, to avoid taxes and/or narcotics violations, those black market participants involved in contraband trade will continue to require a black market, regardless of the balance of payments situation in Peru.

Costs and Benefits of Altering the Foreign Exchange Regime

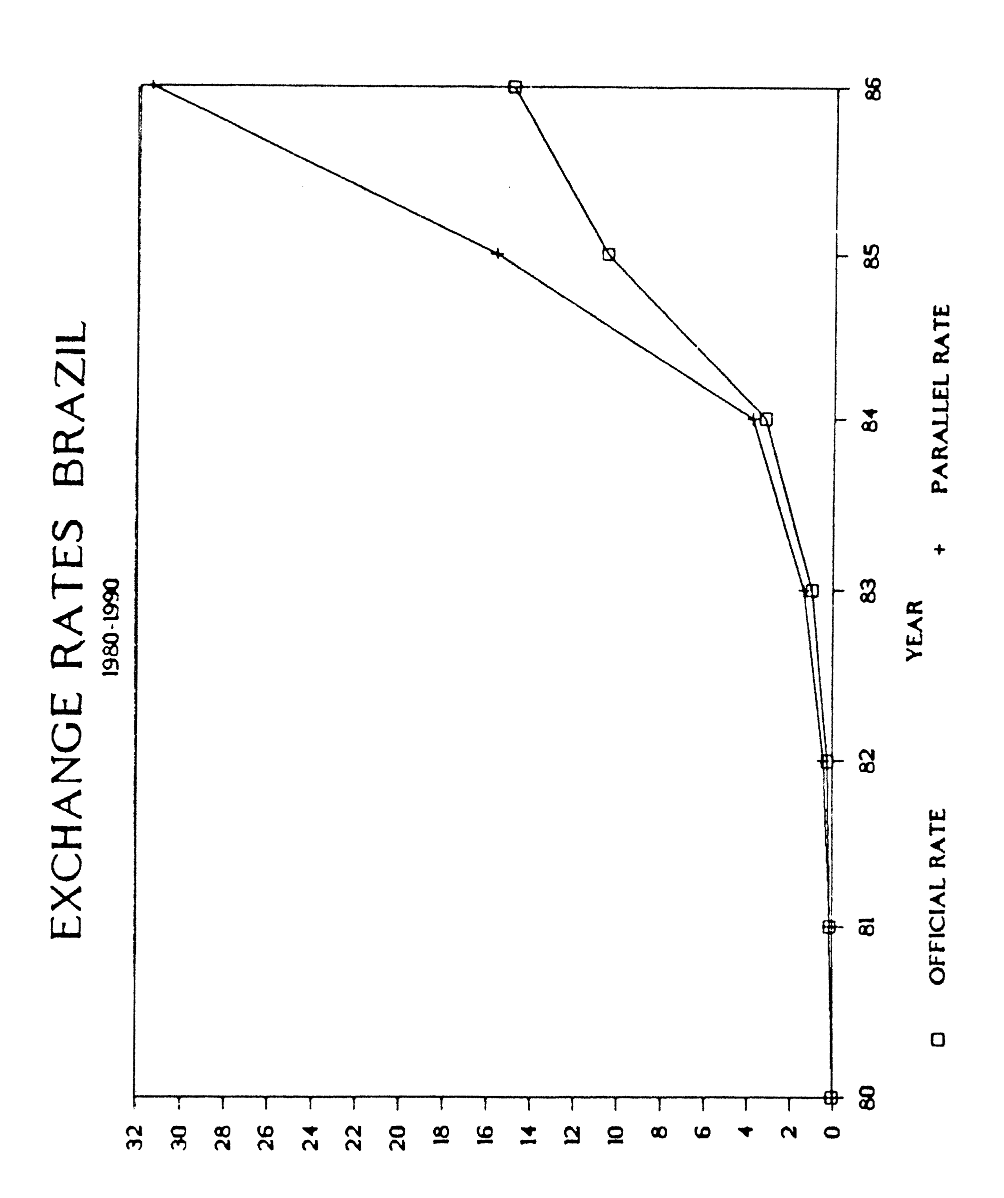
Examination of Peru's balance of payments over the past decade shows that the trade balance has usually been a positive generator of foreign exchange. However, the general economic depression has led to extensive capital flight, which has resulted in a very weak balance of payments position overall. Based on these two factors, it appears that a free foreign exchange market could very well contribute to the existing high level of economic disorder by encouraging greater capital flight. This has **not** become a reality during 1991, the first year of the new market-based economic policy regime. This condition suggests that attempts to open the foreign exchange market fully to legal businesses might not harm the Peruvian balance of payments.

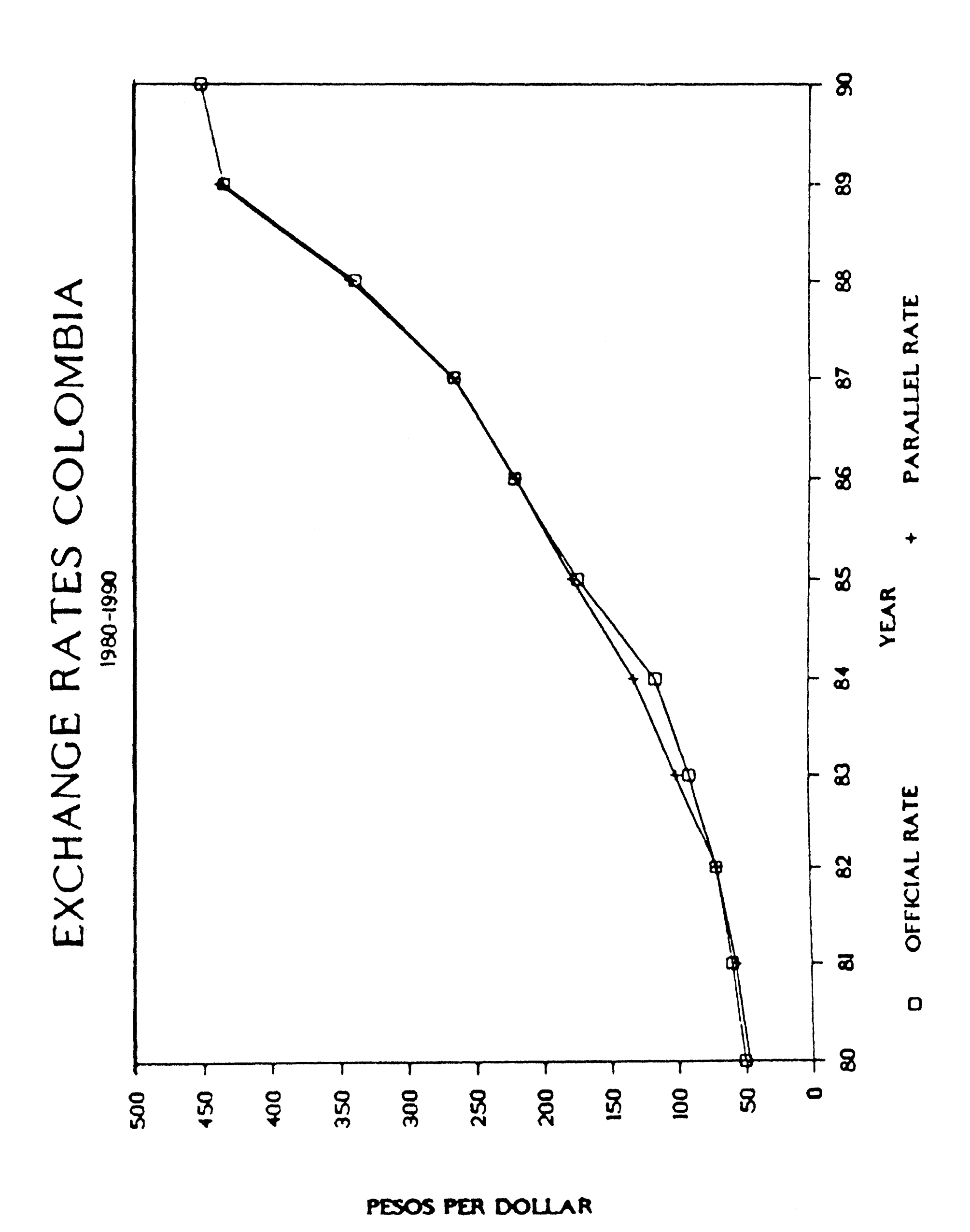
With an official, open foreign-exchange market, the black market should simply wither away except that it is still needed by users involved in illegal transactions, such as tax evasion and contraband trade. If enforcement is employed to reduce black market activity, it (enforcement) would presumably no longer harm the "legitimate" business people. However, it should be recalled that the black market generated (in 1989) dollar inflows of more than $US1 billion, in comparison with total legal exports that generated inflows of about $US3.5 billion. Any major enforcement efforts to restrict the black market could cause a significant drop in that inflow which could, in turn, contribute to new instability.

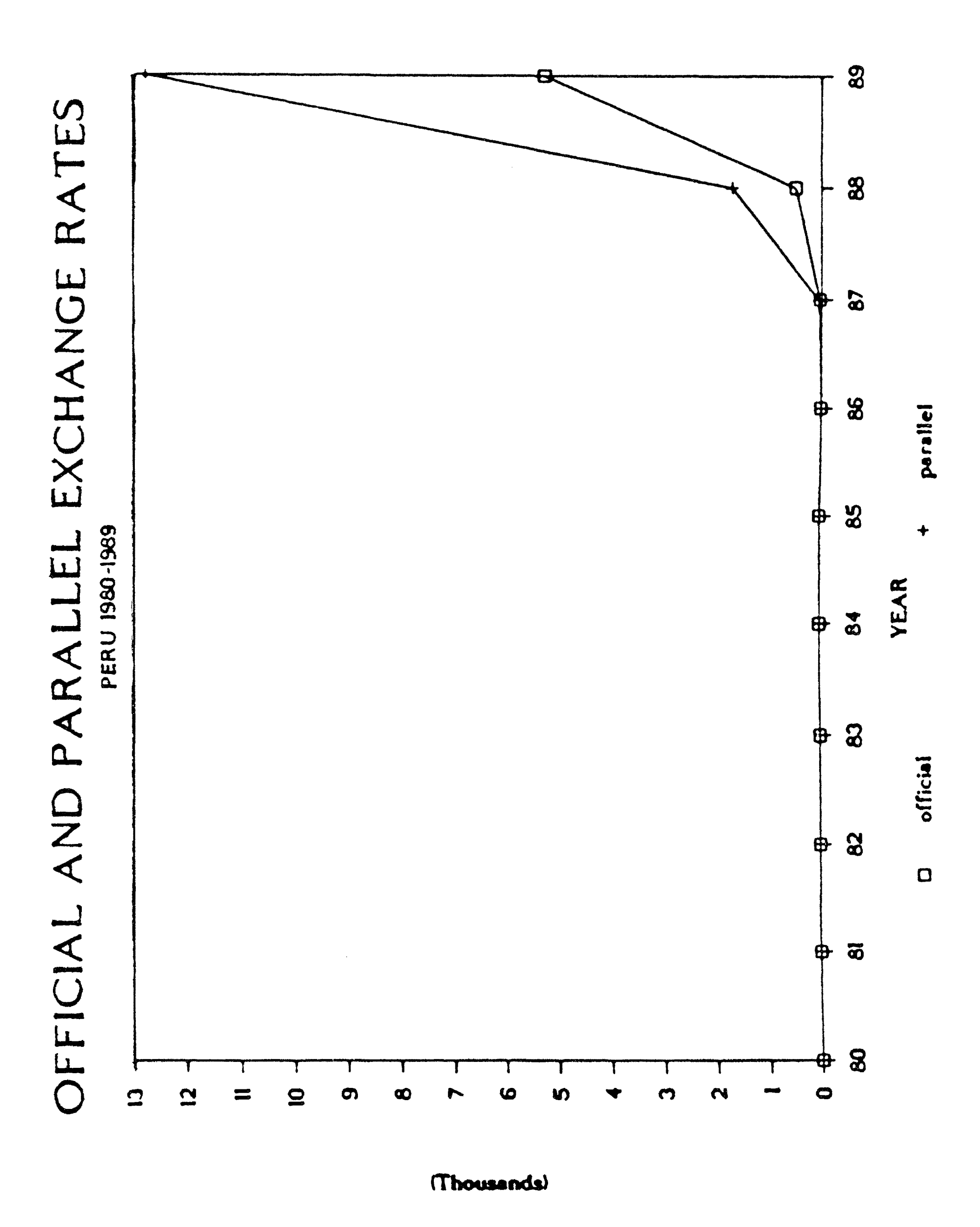
Only if domestic economic stabilization policy leads to a more orderly, formal (i.e., legal) economy would complete elimination of foreign exchange controls and attempts to eliminate the black market be viable. By eliminating the restrictions on access to foreign exchange for importing, and for investment overseas by Peruvians, the Peruvian government has isolated the narcotics traffic and unreported exports of natural resources and other goods in the black market that remains.[23] Thus, **if** the opening of the legal foreign exchange market to accommodate Peruvian importers without rationing and to permit "capital flight" when investors so desire does **not** destabilize the market with overwhelming demand for dollars, then such a policy change could be supported.

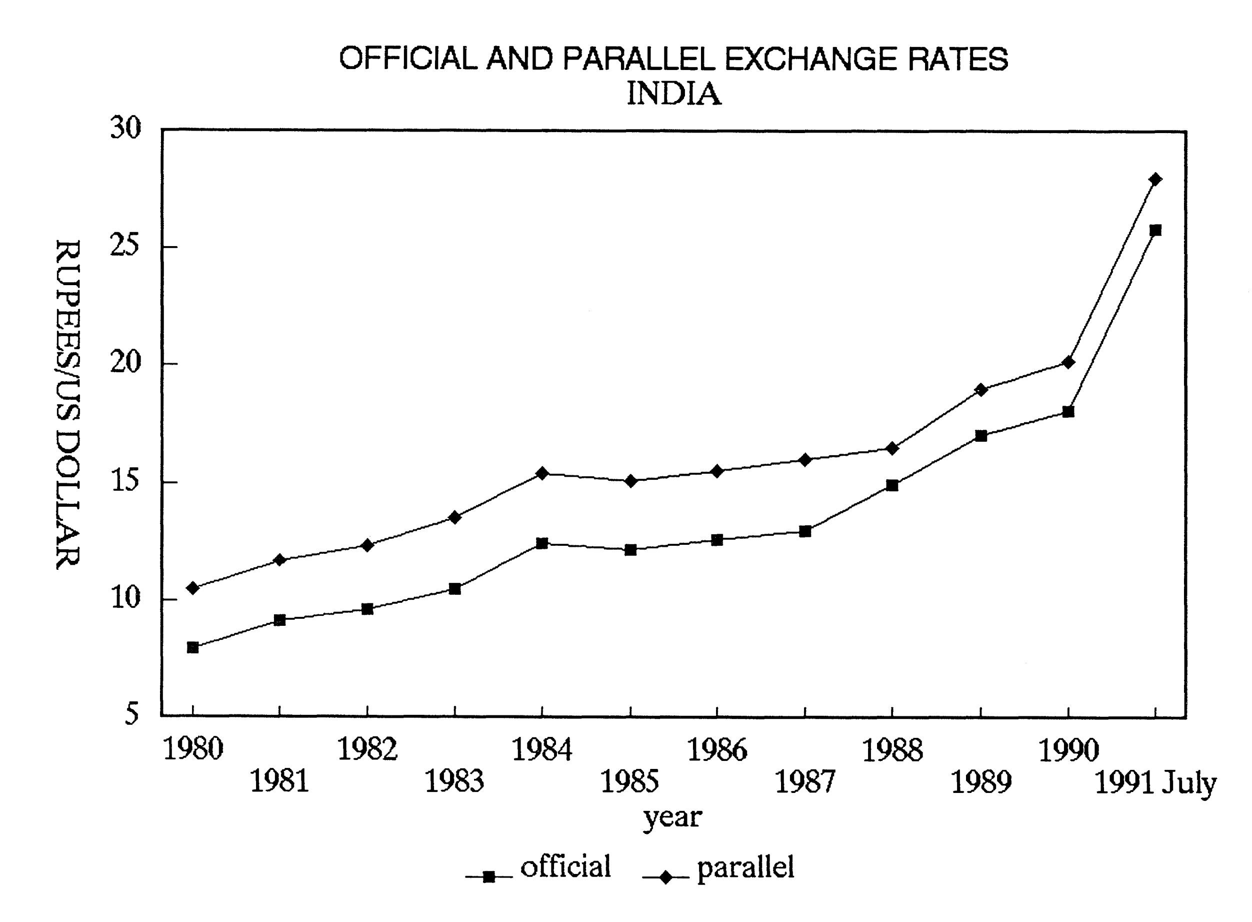
The black market clearly has deleterious effects in the domestic Peruvian economy (assuming a continuation of the liberal economic policy regime). By facilitating the operations of narcotraffickers, it contributes to a huge social and political problem with international ramifications. By putting downward pressure on the value of the dollar, the inflow of narcodollars makes Peruvian exports of legal products less competitive in world markets. By contributing to volatility in the official and black market exchange rates, it creates a risk to Peruvian exporters and importers who need stability in their costs and revenues. These negative influences must weigh heavily in comparison with the inflow of dollars and other foreign currencies that the black market permits.

APPENDIX


EXCHANGE RATES BRAZIL
1980-1990
CRUZEIROS/CRUZADOS PER DOLLAR
(Thousands)
YEAR
OFFICIAL RATE
PARALLEL RATE
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
80
81
82
83
84
85
86


EXCHANGE RATES COLOMBIA
1980-1990
PESOS PER DOLLAR
500
450
400
350
300
250
200
150
100
50
0
80
81
82
83
84
85
86
87
88
89
90
YEAR
OFFICIAL RATE
PARALLEL RATE


OFFICIAL AND PARALLEL EXCHANGE RATES
PERU 1980-1989
(Thousands)
13
12
11
10
9
8
7
6
5
4
3
2
1
0
80
81
82
83
84
85
86
87
88
89
YEAR
official
parallel


OFFICIAL AND PARALLEL EXCHANGE RATES
INDIA
RUPEES/US DOLLAR
30
25
20
15
10
5
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991 July
year
official
parallel

NOTES

1. Peru could not attribute all of its economic woes during the early 1980s to outside causes. Excessive public-sector borrowing from abroad in the late 1980s, combined with a large increase in imports in 1980 and 1981, contributed greatly to Peru's debt crisis that continued through the decade.

2. See the International Monetary Fund's annual report on *Exchange Arrangements and Exchange Restrictions* for a synopsis of Peru's rules on access to foreign exchange for importing and other purposes (IMF, 1988 and 1989). The Business International Corporation also describes the rules on access to foreign exchange and limits on importing (Business International Corp., 1985-1990).

3. This was not the first time that Peruvian authorities had enacted exchange controls to protect dollar reserves. See Kuczynski (1987) for historical information on Peruvian international financial policies.

4. Lindauer (1989) distinguishes among these labels based on several criteria. Parallel markets can be distinguished according to the degree of legal enforcement of the foreign exchange rules (e.g., **black** market implies more legal sanctions than **grey** market). He also uses the term **parallel** market to cover the broad heading of exchange markets that develop in response to government intervention in the official market that limits participation in some way(s). His parallel market concept includes both legal and illegal markets that develop in response to the restrictions on the official market: **black** markets in foreign exchange are illegal, typically due to their involvement in effecting payment for contraband trade.

5. Unfortunately, the term parallel market has been used to describe both legal and illegal non-bank foreign exchange activity.

6. This distinction should not be made too strongly, since enforcement of the anti-narcotics laws are notably weak in Peru, and commercial banks often have purchased foreign currency (dollars) in situations when the sellers have no ability to demonstrate legal sources of that foreign exchange (e.g., at bank branches in the Upper Huallaga Valley).

7. Implicitly here, the existence of the foreign exchange black market has a negative welfare impact on the economy since it facilitates the operation of contraband (i.e., illegal) business.

8. Interestingly, Dornbusch *et al.* (1983) have argued that the black market exchange rates in countries such as Brazil and Argentina can be explained by portfolio balance models in which holdings of domestic *versus* foreign currency are determined in the black market based primarily on interest rate differentials between the less-

developed country (LDC) and the United States. This reasoning has been demonstrated to operate in determination of free-exchange markets in industrial-country currencies, but it fails to hold in many LDC cases. Unfortunately, Dornbusch presents no empirical evidence to support his assertion, so his analysis must be rejected on empirical grounds from the literature cited here, as well as from the present study, which show that purchasing power parity is the driving force in exchange-rate determination in these black markets — not the international Fisher relationship that depends on interest differentials.

9. Pick's *World Currency Yearbook*, published bi-annually, offers a succinct, very useful commentary on currency black markets around the world. Both exchange rate quotations in black and official markets and analysis for the differences between the two markets are presented.

10. See Grosse (1991) for a detailed examination of the Colombian black market in foreign exchange.

11. In August of 1990, the government stopped permitting transactions at the MUC rate, thus moving, *de facto*, to a single legal exchange rate for banking transactions, another for imports and the black market. As of the date of this writing (September 1990), the new foreign exchange policy has not been defined.

12. Much of this section is based on published articles in the Peruvian press and Peruvian scholarly journals, as cited in the text. An especially detailed exposition appears in Briceño and Martínez (1989). Corroborative evidence comes from detailed interviews with Peruvian *cambistas* in Lima and with wholesale users of their services. Both large-scale dealers in foreign exchange (who operate in transactions of approximately $US 10,000 or more) and retail dealers were interviewed, as well as other intermediaries involved.

13. There has also been a significant movement of exchange house business to the Ecuadorean frontier, even when only dollars are involved. Lima-based exchange houses use *casas de cambio* on the Ecuadorean border to buy dollar-denominated bank deposits for their Peruvian clients. Because the Lima exchange houses cannot use the local commercial banks to transfer funds abroad, they need either financial instruments, such as checks, or bank deposits abroad to sell to their clients who seek this service. By using an exchange house on the Ecuadorean border, the Lima *cambista* can buy (for a fee) a dollar-denominated bank deposit that is arranged by the border *cambista* in Ecuador, for subsequent transfer to the United States or elsewhere. Ecuadorean law permits free transfer of bank deposits overseas.

14. This estimate comes from Astete and Tejada (1988). Briceño and Martinez (1989: 264) estimate that, by 1987, the Alto Huallaga

valley accounted for about 80% of total coca production in the country.

15. The Upper Huallaga River valley runs through the eastern Peruvian jungle, on the slopes of the Andes mountains. Beginning near the town of Tingo Maria, the river flows northward through the villages of Uchiza, Tocache, Juanjui, Tarapoto, and several even smaller settlements, before joining the Marañon River and flowing into Iquitos, where it contributes to form the Amazon. In the Upper Huallaga valley, traditional crops such as corn, rice, and beans are still grown for local consumption. The only product that generates any foreign exchange earnings in this region is coca.

16. The exchange houses in the Upper Huallaga valley also sell dollars directly to local branches of commercial banks (except during the July 1987-September 1988 period, when the banks were not permitted to deal with *cambistas*) which, in turn, transport the cash to Lima for local use and/or sale to the Central Bank.

17. This process was described in personal interviews with large-scale operators of exchange-houses and with corporate treasurers in Peru. It is also described in *Actualidad Económica* (1988a).

18. This description is based on published accounts of the Peruvian drug trade (Actualidad Económica, 1988b) and on interviews with managers of wholesale exchange-houses in Lima during 1990.

19. Briceño and Martinez (1989) actually estimate that $US 1.974 billion were earned by Peruvian narcotraffickers in 1987, of which about $US 500 million were placed directly into overseas accounts without entering Peru. The 1987 estimate is corroborated by a study published in *Actualidad Económica* (October 1988b: 8) that states that 1987 narcotics exports generated at least $US 1,560 million for Peruvian traffickers. Two other studies cited in *Actualidad Económica* (1988a: 54) estimated a 1988 cocaine-related income for Peruvian narcotraffickers of about $US 1,200 million.

20. This point is made explicitly in the *Actualidad Económica* article (1988b: 8). In *1/2 de Cambio* (1988), it is estimated that over $US 1 billion enter the black market from narcotraffic, while an additional supply of dollars comes from contraband sales to Ecuador and Chile.

21. This risk may be fairly low due to the low level of Peruvian government enforcement observed at the time. Since the laws on holding foreign currency accounts abroad did not change during the period under study, and since rules on domestic foreign-exchange-denominated bank accounts in Peru changed only during the July

1987-September 1988 period, the statistical analysis is not able to establish a "risk premium" for buying black-market dollars.

22. An additional variable that would be expected to affect this exchange rate is the **penalty** for getting caught using the black market. This penalty was essentially constant during the period of time under study, so it did not influence variations in the black market exchange rate.

23. By permitting foreign-exchange houses to function freely and openly, while requiring transactions to be recorded and requiring the source of currency that is sold in the market to be recorded (as in large cash transactions in the United States), the narcotics trafficking could be largely pushed out of this market. This regulatory change would also permit the fiscal authorities potentially to charge a tax on such transactions, as long as the tax was not so burdensome as to push transactions into another, illegal market.

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